



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/090,211

03/04/2002

James M. Tour

1789-10000

3441

23505 7590 01/25/2007
CONLEY ROSE, P.C.
P. O. BOX 3267
HOUSTON, TX 77253-3267

EXAMINER

LEADER, WILLIAM T

ART UNIT

PAPER NUMBER

1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/090,211

Applicant(s)

TOUR ET AL.

Examiner

William T. Leader

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt of the response to the March 18, 2005 office action, filed on May 09, 2006, is acknowledged. Claims 1-21 are pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 10, 11, 14 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Kayyem et al (6,090,933) for the reasons given in the previous office action and in view of the following comments.
4. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Keen (US 6,060,327) for the reasons given in the previous office action and in view of the following comments.
5. Claims 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Reed (5,589,692) Claims 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Reed (5,589,692) for the reasons given in the previous office action and in view of the following comments.

Claim Rejections - 35 USC § 103

6. Claims 1-4, 7-14, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keen in view of Kayyem et al for the reasons given in the previous office action and in view of the following comments.

Response to Arguments

7. Applicant's arguments have been carefully considered but are not deemed to be persuasive. At page 4 of the Remarks, applicant argues that Kayyem does not appear to teach or suggest any step of activating the metal-bonding. Claim 10 does not limit the recitation of the activating step in any manner. Thus, the step is considered to include any circumstances in which the molecular devices in solution are placed in a form in which step of allowing the bonding of step e) can occur. Clearly, the molecular wire molecules in the solution of Kayyem are placed in a form in which bonding occurs. As explained at column 64, lines 53-64, this is done by exposure to ammonium hydroxide. This exposure may be considered to be an activating step since it prepares or activates the molecular wire molecules for bonding.

8. At pages 4-5 of the Remarks, applicant states that Keen discloses conventional electrochemical assembly of molecules. Applicant has amended claim 19 to recite a protective group for impeding rapid attachment of the molecular device to the substrate. This argument is persuasive with respect to the rejection under 35 U.S.C. 102. Claim 19 now stands rejected under 35 U.S.C. 103 in which Keen is applied in combination with Kayyem. As set forth in the previous office action, Kayyem discloses the use of traditional protecting groups.

9. With respect to claim 20, which is directed to a device rather than a process, applicant argues that Keen does not teach or suggest a molecular circuit constructed by means of a process involving impeding bonding of the molecular device molecules to the substrate sufficiently that application of a voltage potential to the substrate results in assembly of the molecular device on the substrate at a rate that is at least 1.5 times the rate of assembly of the molecular device.

Applicant's argument is directed to the manner in which the claimed device is made. However, claim 20 is directed to the device itself. As explained in section 2113 of the MPEP "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself." Applicant has not pointed to a structural difference in the product recited in claim 20 and that of Keen.

10. At page 6 of the Remarks, applicant argues that Reed fails to teach or suggest electrochemical assembly of molecular systems. Claim 21 as well as claim 20 is directed to a molecular circuit rather than a process. Applicant has not identified a structural difference between the product of claims 20 and 21 and that of Reed. Once a product appearing to be substantially identical is found and a 102 rejection made, the burden shifts to the applicant to show an unobvious difference. See MPEP 2113.

11. At pages 6 and 7 of the Remarks, applicant argues that Kayyem does not contemplate the provision of protective groups for impeding bonding and argues that Kayyem teaches away from the present invention by teaching that molecules must be subjected to an "in situ deprotection". This argument is not convincing. Claim 1 recites a step of impeding bonding, while claim 7 recites the bonding is impeded by providing a protective group. Inasmuch as Kayyem teaches

Art Unit: 1742

the provision of a protective group, bonding would be expected to be impeded in the same manner as when applicant provides a protective group regardless of whether Kayyem explicitly makes this observation.

12. At page 7 of the Remarks, applicant additionally observes that Kayyem neither teaches nor suggests electrochemical assembly of molecular device molecules and Keen fails to teach or suggest the use of protecting groups. Applicant is correct in these observations. However, in the rejection under 35 U.S.C. 103, neither reference is applied alone, but in combination. Applicant argues that the combination would not give persons of ordinary skill in the art any basis for comparison between assembly of protected and unprotected molecules or between assembly of molecules on a charged substrate versus that on a voltage-neutral substrate. The combination of references is considered to teach the operative steps recited by applicant. It is not considered necessary that the references provide a basis for comparison. Rather, since the same steps recited by applicant are suggested by the references, the result of carrying out these steps would be expected to be the same as when applicant carries out these steps.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after


Art Unit: 1742


the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


William Leader
January 17, 2007


ROY KING
SUPERVISOR, PATENT EXAMINER
FEB 14 2007 1700